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ABSTRACT

Using a short form of the Student Assessment of Teaching and Learning (C. Ellett, J. Ruggutt, and D. Davis, 1999) and the Personal Learning Efficacy Measure (C. Ellett, J. Ruggutt, and D. Davis) in addition to a course evaluation form, this study investigated relationships between the college classroom environment variables of involvement, knowledge, professional skills, and higher order thinking skills and the dependent variables of academic self-efficacy and course evaluations. Participants were 102 students enrolled at a southeastern university during the spring 2001 semester. Multiple correlation analyses found that the predictor variables explained 32% of the variance in academic self-efficacy and 45% of the variance in course evaluations. All findings were statistically significant at the rejection criterion of $p < 0.01$. Similar research may facilitate understanding and improvement of college classroom environments. An appendix contains all three study instruments. (Contains 20 references.) (Author/SLD)

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The Effects of College Students' Perceptions of Teaching and Learning On Academic Self-Efficacy and Course Evaluations

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Abstract

Using a short form of the Personal Learning Environment Measure and the Student Learning Efficacy Assessment, this study investigated relationships between the college classroom environment variables of involvement, knowledge, professional skills, and higher order thinking skills and the dependent variables of academic self-efficacy and course evaluations. Participants included 102 students enrolled at a southeastern university during the spring, 2001 semester. Multiple correlation found that the predictor variables explained 32% of the variance in academic self-efficacy and 45% of the variance in course evaluations. All findings were statistically significant at the rejection criteria of ($p < .01$). Similar research may facilitate better understanding and eventual improvement of college classroom environments.

REVIEW OF THE LITERATURE

Introduction

This study investigated the extent of relationships between the college classroom environment variables of involvement, knowledge, higher order thinking skills, and professional skill and the dependent variables of academic self-efficacy and course evaluations. The predictor variable of involvement measured the extent to which participants in the study perceived that they paid attention in class and understood course goals. The predictor variable of knowledge measured each of the participants' perceptions of the extent to which facts, concepts, and principles were emphasized in the class. The predictor variable of higher order thinking skills (HOTS) measured the participants' perceptions of the extent to which theories, problem solving, and creative thinking were emphasized in the class. The predictor variable of professional skills measured the extent to which writing skills, speaking skills, and career skills were emphasized in the class.

The dependent variable of academic self-efficacy measured the extent to which participants thought that they could use their ability and effort to accomplish course-mandated learning objectives. Academic self-efficacy can be viewed as the participants' appraisal of their capabilities to succeed in academic pursuits. The study's second dependent variable of summative course evaluations measured the participants' overall ratings of the courses in which they completed the study's instruments.

Noting that very little research on the college classroom environment has been carried out, Ellett, Rugutt, and Davis (1999) originated pioneering research into the relationships between college classroom environment variables and learning outcomes that included academic self-efficacy and course evaluations. These researchers found positive relationships of moderate strength between college classroom environment variables and the dependent variables of academic self-efficacy and course evaluations.

The remainder of this literature review will discuss published literature concerning the college classroom environment, academic self-efficacy, and course evaluations.

The College Classroom Environment

Angelo (1990) discussed benefits of involving college faculty members in college classroom environment research. Describing classroom assessments as efforts to understand what students are learning and how they are learning it, Angelo reported that benefits of college classroom assessment included favorable student responses to the assessment process and increased collaboration between faculty members about teaching and learning. Presenting instructor behavior as a central element in crafting college classroom environments that are appreciated by adult learners, Imtel (1991) contended that classroom instructors produce the best possible classroom environments by involving the students in arranging the classroom climate and by being cognizant of their instructional roles in crafting the classroom environment. In the process of investigating the connections between college instructors' self-perceptions and their perceptions of the classroom environments of their classes, Diekhoff (1992) found a statistically significant

($p<.01$) relationship with a strength of ($r=.49$) between professors' self-ratings and their ratings of their classes. The more positively they viewed themselves the more positively they viewed their classes. Imtel (1991) emphasized the influence of professors on shaping the college classroom environment and Diekhoff (1992) emphasized the positive relationship between professors' perceptions of themselves and their perceptions of their classes. A synthesis of these two published authors' views alludes to the benefits of professors developing positive self-perceptions as a means of encouraging themselves to develop positive perceptions of their classes. Considering the powerful influence that professors have on students' perceptions of the college classroom environment it is advantageous for professors to enhance their self-perceptions in order to promote enhanced classroom environments that will be positively perceived by students.

The Academic Self-Efficacy of College Students

Invitational theory holds that the academic beliefs that students develop about themselves are influenced by the messages that they send and receive as participants in the classroom environment. As invitational theorists Purkey and Novak (1996) claim that college classroom instructors can deliberately transmit elevating and enabling communication that cause students to accomplish according to their potential. Positive invitations transmit the message that students are competent and dependable while negative invitations make students feel devalued. Concurring with invitational theorists, academic self-efficacy researchers contend that students' academic self-efficacy is affected by the invitations (or the lack of invitations) that they receive as participants in the classroom environment (Bandura, 1997). As influential shapers of the classroom .

environment, classroom instructors are in a position to powerfully influence academic self-beliefs that students develop about themselves (Pajares, 2001).

Academic self-efficacy (students' appraisal of their capabilities to succeed academically) and the closely related construct of academic self-concept (students' appraisal of their academic capabilities compared to other students) are important motivation-related variables that are positively associated with academic achievement and college success. Cockley (2000) found a statistically significant ($p<.01$) correlation with a strength of ($r=.46$) between African-American college students' academic self-concept and their grade point averages. House (1995) found positive relationships between college students' academic self-beliefs and their grades in college mathematics courses. Watkins (1990) described a meta-analysis of educational research literature that found an average correlation of ($r=.42$) between academic self-concept and academic achievement. Gerardi (1990) found that academic self-concept was a strong predictor of the academic success of minority and low-income engineering majors. Presenting academic self-efficacy as a key academic self-belief, McCombs (1996) described having a positive sense of academic self-efficacy as a very favorable mental state that encourages students' determination and perseverance to learn.

Course Evaluations Completed by College Students

In the process of using the predictor variable of effective university teaching to explain 69% of the variance in the dependent variable of students' perceptions of their learning, Sheehan and DuPrey (1999) articulated effective university teaching as

consisting of students' perceptions of the extent to which the class was informative, challenging, and well organized. Although student evaluations of college courses have been increasingly used to evaluate faculty members since the late 1970s, their effectiveness as measurements of teaching effectiveness is attenuated by confounding variables such as: course difficulty and the professors' grading practices, the professors' personality and cultural background, the professors' political position, and classroom chemistry (Nast,1999). Best and Addison (2000) found a statistically significant ($p<.01$) between the predictor variable of students' perceptions of instructor warmth and course evaluations. These authors found that college students give higher evaluations to professors perceived as being warm and friendly than they give to professors perceived as being cold and distant.

Method

Participants

The participants in this study included 102 students in the southeastern United States. Students in seven randomly selected classes including two sophomore-level classes, three junior-level classes, and two graduate-level classes completed this study's instruments. Fifty-nine of the participants were females and forty-three were males. Sixty-two of the participants were Caucasian and forty were African-American and the participants' socioeconomic backgrounds ranged from lower middle class to upper middle class.

Materials

The first instrument used in this study was a researcher-developed short form version of the Student Assessment of Teaching and Learning (SATL) (Ellett; Ruggutt, and Davis, 1999). The first section of the short form of the SATL measured students' perceptions of classroom involvement. The first section of the SATL has a split-half reliability coefficient of r=.67. The second section measured the extent to which they gained knowledge from the course by learning factual information, developing concepts, and applying rules. The knowledge section had a split-half reliability coefficient of r=.56. The third section measured the extent to which students perceived that they gained higher order thinking skills from the course by applying theories and by using problem solving and critical thinking. The higher order thinking skills section had a split-half reliability coefficient of r=.57. The fourth section measured the extent to which students perceived that they gained professional skills from the course by developing job-related skills and writing and speaking skills. The fourth section had a split-half reliability coefficient of .83. Ellett, Rugutt, and Davis (1999) have established the validity of the former items as being adequate for measurement purposes.

The study's second instrument was the Personal Learning Efficacy Measurement (PLEM) that measured the students' academic self-efficacy by asking them to respond to six Likert-type items that measured the extent to which they exerted effort in the course to enhance their learning and the extent to which they thought their efforts could accomplish course objectives. Ellett, Rugutt, and Davis established the reliability of the

PLEM at r= .92 and these researchers also documented the validity of this instrument. The study's third instrument measured students' summative course evaluations by asking them to rate the quality of teaching in the course, the contribution of the course to their learning, and their overall rating of the course.

The three instruments used in the study are in Appendix A.

Design and Procedure

The participants completed the study's three instruments during the second week of April, 2001 in their regularly scheduled classes. The participants were told their rights and options according to research oversight protections at the sponsoring institution. They were told that their participation was voluntary and to feel free to take the option of not filling out the instruments. They were told that their responses to the instruments were anonymous. The classroom teacher left the room briefly while the researcher got the participants to complete the instruments. Total administration time was about ten minutes for each class.

After all of the study's participants had completed the instruments, the researcher scored the instruments and entered the data into the Minitab statistical software system.

Null Hypotheses

The first null hypothesis predicted no statistically significant ($p<.01$) relationship between the predictor variables of students' perceptions of involvement, knowledge, higher order thinking skills, and professional skills and the dependent variable of academic self-efficacy as measured by the PLEM. The first null hypothesis was tested using multiple correlation and a correlation matrix was also run. The predictor variable of

involvement measured the extent to which each participant perceived that he/she paid attention in class and understood course goals. The predictor variable of knowledge measured each participants' perceptions of the extent to which facts, principles, and knowledge were emphasized in the class. The predictor variable of higher order thinking skills (HOTS) measured each participants' perception of the extent to which theories, problem solving, and creative thinking were emphasized in the class. The predictor variable of professional skills measured the extent to which writing and speaking skills and career skills were emphasized in the class. The study's first dependent variable of academic self-efficacy measured the extent to which participants thought they could use their ability and effort to accomplish course objectives. The first null hypothesis was rejected and predictor variables explained 32% of the variance in academic self-efficacy.

The study's second null hypothesis predicted no statistically significant relationship ($p<.01$) between the predictor variables of involvement, knowledge, HOTS, and professional skills and the dependent variable of summative course evaluations. Summative course evaluations measured the participants' ratings of the course. The study's second null hypothesis was tested using multiple correlation and a correlation matrix was also run. Table 1 displays the results of testing the study's first null hypothesis and Table 2 displays the results of testing the study's second null hypothesis. The second null hypothesis was rejected and predictor variables explained 45% of the variance in course evaluations.

Table 1.

The relationship between the predictor variables of involvement, knowledge, HOTS, and professional skill and the dependent variable of academic self-efficacy.

PREDICTOR VARIABLES	DEPENDENT VARIABLE
Involvement ($r = .55$)*	
Knowledge ($r = .35$)*	
	Academic Self-Efficacy R Square = 32%*
HOTS ($r = .37$)*	
Professional Skill ($r = .36$)*	

*denotes a statistically significant ($p < .01$) relationship

n=102

Table 2.

The relationship between the predictor variables of involvement, knowledge, HOTS, and professional skill and the dependent variable of summative course evaluations.

PREDICTOR VARIABLES	DEPENDENT VARIABLE
Involvement ($r = .49$)*	Summative Course Evaluations R Square = 45%*
Knowledge ($r = .53$)*	
HOTS ($r = .60$)*	
Professional Skill ($r = .61$)*	

* denotes a statistically significant ($p < .01$) relationship

n = 102

Results of Testing Null Hypotheses

The rejection of the first null hypothesis provided evidence of a statistically significant ($p<.01$) relationship between the predictor variables and the dependent variable of academic self-efficacy. The predictor variables, taken collectively, explained 32% of the variance in the dependent variable of academic self-efficacy according to a multiple correlation test. A correlation matrix, which measured the extent of linear relationship between each of the predictor variables taken individually and the dependent variable indicated that students' perceptions of classroom involvement had the strongest relationship ($r=.55$) with academic self-efficacy.

The rejection of the second null hypothesis provided evidence of a statistically significant ($p<.01$) relationship between the predictor variables and the dependent variable of course evaluations. The predictor variables, taken collectively, explained 45% of the variance in the dependent variable of course evaluations according to a multiple correlation test. A correlation matrix, which measured the extent of linear relationship between each of the predictor variables taken individually and the dependent variable indicated that professional skill ($r=.61$) and HOTS ($r=.60$) had the strongest relationships with course evaluations.

Discussion

The results of this study provide partial corroboration for the results of a pioneering college classroom environment study presented by Doctors Ellett, Rugutt, and Davis in 1999. Doctors Ellett, Rugutt, and Davis found statistically significant positive relationships of moderate strength between college classroom environment variables

and academic self-efficacy and course evaluations. The college classroom environment and the effectiveness of college teaching and learning is a drastically under researched area that needs to be much more extensively researched. Correlation research is the ideal research framework for college classroom environment research because correlation research is logistically feasible, convenient, and highly replicable. Although correlation provides no evidence of predictor variables having direct causal impacts on the dependent variables, correlation does accurately measure the extent of mathematical association between variables that are important for enhancing the effectiveness of college teaching and learning. When replications of correlation studies reveal regularities such as consistently similar correlations between predictor variables and dependent variables progress is being made toward establishing general laws that have far-reaching applicability.

Elkind (1994) described postmodernism as an attempt to replace science and scientists' search for regularities with a search for differences. Educationists need to avoid the anti-science mentality that only looks for differences while not looking for relationships and regularities. Granted, differences are important and there are important differences between each university, each professor, each class, and each student. However, correlation can efficiently and accurately measure the extent to which universities, professors, classes, and students are similar in respect to their scores on variables that are important to the improvement of college teaching and learning. For instance, very similar relationships between students' perceptions of classroom involvement and academic self-concept have been found (Knight & Waxman, 1990;

Byer, 2000; Byer, in press). Evidence exists of a consistent correlation coefficient of approximately (r=.30) between the predictor variable of students' perceptions of classroom involvement and academic self-concept in secondary social studies classes. A similar, but slightly stronger, relationship of (r=.55) was found between these two variables in the present study. Repeated and consistent findings of similar relationships between variables that are important to the effectiveness of teaching and learning provide a basis for establishing and developing general laws. For instance, environmental press theory holds that the learning environment exudes a press (or influence). A positive environmental press promotes learning by encouraging students with beneficial advantages while a negative environmental press discourages learning by discouraging students with detrimental disadvantages (Murray, 1938). Correlation research into the college classroom environment adds to the knowledge base that is usable for establishing general laws and general theories that provide classroom instructors with general guidance focused on improving teaching effectiveness. Differences still matter. Future research along the lines presented in this paper needs to examine differences in participants' scores on variables according to grade classification and gender. Subsequent research also should investigate the extent to which instructors can intentionally improve students' perceptions of key aspects of the college classroom environment. Subsequent research also should investigate the extent to which enhanced students' perceptions of the college classroom environment are related to improvements in college learning outcomes including academic self-efficacy, course evaluations, and academic achievement.

APPENDIX A

Student Assessment of Teaching and Learning (Short Form)

PART ONE: (The INVOLVEMENT subscale)
Directions: Please circle the number on the scale at the right which best reflects your feelings.

	Almost Never	Seldom	Some-times	Often	Almost Always
1. I know what I am trying to accomplish in this class.	1	2	3	4	5
2. I pay attention in this class.	1	2	3	4	5
3. I try to understand the work in this class.	1	2	3	4	5

Directions for parts two, three, and four
Use the four-point scale below to evaluate the degree to which each type of learning is emphasized in this course. (DO NOT rate how <u>much</u> you have learned.....Only the amount of emphasis given to each type of learning.
For parts two, three, and four rate the emphasis placed on each type of learning listed below by circling a number for each type of learning.

1 = No emphasis
2 = Some emphasis
3 = Much emphasis
4 = Very much emphasis

PART TWO (The KNOWLEDGE subscale)

1. Learning factual information 1 2 3 4
2. Developing concepts 1 2 3 4
3. Understanding and applying principles and rules 1 2 3 4

PART THREE (The Higher Order Thinking Skills (HOTS) subscale)

1. Understanding and applying theories 1 2 3 4
2. Critical analysis and/or problem solving 1 2 3 4
3. Creative thinking 1 2 3 4

PART FOUR (The Professional Skills subscale)

1. Developing knowledge of self and others 1 2 3 4
2. Developing professional, career, and job-related skills 1 2 3 4
3. Developing written communication skills 1 2 3 4
4. Developing oral communication skills 1 2 3 4

APPENDIX B

The Personal Learning Efficacy Measurement

Directions: Please respond to each of the following items by circling the number that best reflects your opinion about each question.

1. How much effort did you put forward in this course to enhance your own learning?

Little or None		Some		A Large Amount
1	2	3	4	5

2. When there were difficult or uncertain obstacles to overcome in learning/ achieving in this course, how much effort and persistence did you put forward to enhance your own learning?

Little or None		Some		A Large Amount
1	2	3	4	5

3. If you were repeatedly failing in this course, how much effort and persistence would you put forth to continue to enhance your own learning?

Little or None		Some		A Large Amount
1	2	3	4	5

4. How much knowledge and/or ability do you think you have to accomplish your learning objectives in this course?

Little or None		Some		A Large Amount
1	2	3	4	5

5. How much personal responsibility do you think you have to accomplish your learning objectives in this course?

Little or None		Some		A Large Amount
1	2	3	4	5

6. To what extent do you believe your efforts can accomplish the learning objective of this course?

Little or None		Some		A Large Amount
1	2	3	4	5

APPENDIX C

Summative Course Evaluation

Directions: Use the scale provided below and circle the appropriate number that best reflects the numerical grade you would give the course for each of the three items that follow.

SCALE
A = 90-100
B = 80-89
C = 70-79
D = 60-69
F = Below 60

1. How would you grade the quality of teaching in this course?

   100 90 80 70 60 50 40 30 20 10 0

2. What was the contribution of this course to your personal learning?

   100 90 80 70 60 50 40 30 20 10 0

3. How would you grade this course overall?

   100 90 80 70 60 50 40 30 20 10 0

Demographic Characteristics
Directions: Check the appropriate lines to identify your college, classification, and gender.

College:

_____Business
_____Education
_____Liberal Arts
_____Natural Science/Math

Classification:
_____Freshman
_____Sophomore
_____Junior
_____Senior
_____Graduate Student

Gender:

Male_____
Female_____

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